AMENDMENTS TO THE CLAIMS

1. (Previously presented)
A robotic joint comprising:

a first bay having a first bay rotation axis;

a first cup having a first cup rotation axis, the first cup being rotatably connected to the first bay;

a second cup having a second cup rotation axis, the second cup being rotatably connected to the first cup

a second bay having a second bay rotation axis, the second bay being rotatably connected to the second cup; and

a gear train connected to the first bay and the second bay

wherein

the first bay rotation axis is aligned with the second bay rotation axis;

the first cup rotation axis and the second cup rotation axis are aligned when the joint is in a straight position; and

the relative orientation of the first and second bay is preserved when the first cup rotates relative to the second cup.

2. (Original)
The robotic joint of claim 1, wherein the gear train comprises:

a first bevel pinion;

a first bevel gear mating the first bevel pinion;

a second bevel gear fixedly connected to the first bevel gear; and

a second bevel pinion mating the second bevel gear;

wherein the first bevel pinion is fixedly connected to the first bay, and the second bevel pinion is fixedly connected to the second bay.

3. (Original)

The robotic joint of claim 2, wherein the gear train further comprises a bevel gear bearing having an internal ring and an external ring, the internal ring being fixedly connected to at least one of the first and second bevel gears.

4. (Original)

The robotic joint of claim 3, wherein the external ring of the bevel gear bearing is fixedly connected to the second cup.

5. (Original)

The robotic joint of claim 4, wherein

(a) the first bay and the first cup are rotatably connected with a first pair of bearings, the first pair of bearings having a first pair of internal rings and a first pair of external rings, the first pair of internal rings being fixedly connected to the first cup and the first pair of external rings being fixedly connected to the first bay, whereby the first pair of bearings allow the first bay to rotate relative to the first cup about a common axis of rotation; and

(b) the second bay and the second cup are rotatably connected with a second pair of bearings, the second pair of bearings having a second pair of internal rings and a second pair of external rings, the second pair of internal rings being fixedly connected to the second cup and the second pair of external rings being fixedly

connected to the second bay, whereby the second pair of bearings allow the second bay to rotate relative to the second cup about a common axis of rotation.

6. (Original)

The robotic joint of claim 5, further comprising:

(a) a first spur gear fixedly connected to the first cup;

(b) a first spur pinion gear mating the first spur gear;

(c) a first motor shaft fixedly connected to the first spur pinion gear and having a common axis of revolution therewith;

(d) a first minor bearing having an internal ring and an external ring, the internal ring being fixedly connected to the first bay;

(e) a second spur gear fixedly connected to the second cup;

(f) a second spur pinion gear mating the second spur gear;

(g) a second motor shaft fixedly connected to the second spur pinion gear and having a common axis of revolution therewith; and

(h) a second minor bearing having an internal ring and an external ring, the internal ring being fixedly connected to the second motor shaft, the external ring being fixedly connected to the second bay;

whereby a rotation of the first motor shaft induces a rotation of the first cup with respect to the first bay and a rotation of the second motor shaft induces a rotation of the second cup with respect to the second bay.

7. (Previously presented)

The robotic joint of claim 1, wherein said first bay rotation axis, first cup rotation axis, second cup rotation axis and second bay rotation axis meet in a single point.

8. (Previously presented)

A robotic joint comprising:

a first bay;

a first rotatable cup, connected with the first bay;

a second rotatable cup, connected with the first cup; and

a second bay connected with the second cup,

wherein:

rotation of the first cup without a corresponding rotation of the second cup allows movement of the first bay around a cone;

rotation of the second cup without a corresponding rotation of the first cup allows movement of the second bay around a cone;

rotation of the first cup in a first direction and of the second cup in a second direction same as the first direction allows bending in a plane of the first and second bay; and

rotation of the first cup in a first direction and of the second cup in a second direction opposite the first direction allows rotation of the second bay in one direction and corresponding rotation of the first bay in another direction opposite the one direction, thus preserving orientation of the first bay upon rotation of the second bay.

9. (Previously presented)

The robotic joint of claim 8, further comprising a first and second bevel gear connecting the first cup with the second cup, the first and second bevel gear rotating upon rotation of the first and second cup, respectively.

10. (Previously presented)

The robotic joint of claim 9, further comprising a first bevel pinion associated with the first bevel gear and a second bevel pinion associated with the second bevel gear.

11. (Previously presented)
The robotic joint of claim 10, wherein the first bevel pinion, the first bevel gear, the second bevel gear and the second bevel pinion form a gear train.

12. (Cancelled)

13. (Cancelled)

14. (Previously presented)
A robotic joint comprising:

a first half assembly including:

a first bay having a first bay rotation axis; and

a first cup having a first cup rotation axis, the first cup being rotatably connected with the first bay;

a second half assembly including

a second bay having a second bay rotation axis; and

a second cup having a second cup rotation axis, the second cup being rotatably connected with the second bay;

the second half assembly meeting the first half assembly on a inclined plane which is inclined with respect to a perpendicular plane perpendicular to the first and second bay rotation axis,

wherein:

the first bay rotation axis is aligned with the second bay rotation axis;

the first cup rotation axis and second cup rotation axis are aligned when the joint is in straight position; and

a combined rotation of the first half assembly around the first bay rotation axis and the second half assembly around the second bay rotation axis defines either a rotation, in opposite directions, of the first bay and the second bay in a location distal to the inclined plane, or bending in a plane of the first and second bay.

15. (Previously presented)
The robotic joint of claim 14, wherein the inclined plane has an inclination angle of 45° with respect to the perpendicular plane.

16. (Previously presented)
The robotic joint of claim 14, wherein the first bay rotation axis, first cup rotation axis, second cup rotation axis, second bay rotation axis meet in a single point.

17. (Previously presented)
A robot including a robotic joint, the robotic joint comprising:
a first bay;

a first rotatable cup, connected with the first bay;

a second rotatable cup, connected with the first cup; and

a second bay connected with the second cup,

wherein:

rotation of the first cup without a corresponding rotation of the second cup allows movement of the first bay around a cone;

rotation of the second cup without a corresponding rotation of the first cup allows movement of the second bay around a cone;

rotation of the first cup in a first direction and of the second cup in a second direction same as the first direction allows bending in a plane of the first and second bay; and

rotation of the first cup in a first direction and of the second cup in a second direction opposite the first direction allows rotation of the second bay in one direction and corresponding rotation of the first bay in another direction opposite the one direction, thus preserving orientation of the first bay upon rotation of the second bay.

18. (Previously presented)

A robot according to claim 17, wherein the robot is a snake robot.

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